

REPORT OF SCREW WORM SURVEY IN MISSISSIPPI
AND LOUISIANA, SEPTEMBER AND OCTOBER 1932

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An outbreak of screw worm cases was reported to the Bureau of Entomology from Pearl River and Warren Counties, Mississippi, the first part of October. I was instructed to proceed to these districts and investigate the outbreak and devise control measures.

Vicksburg, Mississippi, was visited October 7 to 11 inclusive. Upon arrival the office of the County Agent was visited and arrangements made to demonstrate the benzol-tar oil treatments. It was found that chloroform was usually used to kill the worms but gasoline, carbolic acid, cresol and several other chemicals were used to some extent. Many kinds of wound dressings were used, including pine tar, coal tar dips, lubricating oils and animal fats. The cases were mostly in cattle, but cases were treated in hogs, horses and dogs. The outbreak started about the middle of September and was rather general in central and north Mississippi, centering in the Yazoo Valley and in the hills to the east. A considerable number of cases were had at Jackson and Yazoo City, mostly in dairy calves and hogs. Reinfestations were reported to be usual in this section and some of the cases had persisted for about a month. Most of the cases treated were reinfestations, and on the 8th several egg masses were observed.

The weather was quite cold, with misty rain on the 10th and 11th, and only a few eggs were observed. While the owners of the stock treated considered many of the cases very bad, they were rather mild as compared to some observed in south Texas. Death loss of a considerable number of calves and some hogs was reported. Most holdings had more or less cases during the fall and on some holdings as high as 10 per cent of animals were infested. Approximately 50 infested cases were treated in this vicinity, and some 300 larvae were collected from the several types of wounds. From these 123 Cochliomyia macellaria emerged. No other species of fly emerged from any of the collections. From examinations of carcasses it appeared that there was a rather moderate to light population of blowflies; approximately 60 per cent were C. macellaria, 30 per cent Phormia regina, 8 per cent Lucilia and a few Sarcophagidae. It is usual to have a few cases of screw worms in this section each year, with an occasional outbreak, but this was reported to be one of the worst outbreaks in the history of the country.

Pearl River County district was visited on the 12th to 14th inclusive, and the same type of work done here as at Vicksburg. Most of the cases here had been in sheep, and a loss of 1,500 head by death was reported. Approximately 40,000 sheep are grazed in open range cut-over pine lands in small to medium sized bands of from 25 to 3,000 to holdings. It is quite possible that a considerable amount of the loss was from stomach worms. The outbreak began about the same time as at Vicksburg. Cases were observed or reported in cattle, hogs, dogs and cats as well as in sheep. No really serious cases were observed, but many were considered

serious by the natives and some rather severe treatments were applied which may have been responsible for deaths. The predisposing cause of the cases in sheep was ticks in ears of sheep, which were generally present. The tick collected was identified as the Gulf Coast tick, Amblyomma maculatum.

The weather was rather cool and clear. On the 13th a number of sheep were treated on a holding. The wormy animals were kept in a small cotton field. One was missing; this animal was considered dead and reported to be a very bad case. In order to see just what it was, a personal search was made and the sheep was found in a heavy growth of weeds in a deep ravine. It had an infestation of worms in one ear which was about eaten off, and there was a heavy large (six-inch) infestation on the side where the sheep had been rubbing its head. The animal was rather weak but able to give a man a good chase. The worms were killed and pine tar oil applied. The animal went back, began grazing and appeared quite normal. The wound on the side was quite covered with egg masses and three C. macellaria were ovipositing even after the chase. Such cases were evidently the cause of much of the reported loss. Screw worm cases in this district were unknown to the younger men; some of the older men remembered an outbreak about 30 years ago, mostly in sheep. Some 200 larvae were collected from wounds of several types and from different classes of animals: 83 C. macellaria emerged. No other species emerged. About 70 per cent of the flies at carcasses were C. macellaria. Phormia, Lucilia and a few Sarcophaga were usually present.

The county agent at Alexandria, Louisiana, was visited on the 15th. The weather was cold and rainy, and no attempt was made to treat any cases and the agent did not know of any cases at that time. They

usually have screw worm cases every year, and some years they are quite common. The outbreak this season was the worst in many years and was quite general over the state, especially in cattle in the ticky sections. They had six cases in hogs at the fair at Alexandria.

Marshall, Palestine and Hearne, Texas, were visited on the 16th and 17th, and worm cases were reported not to have been more than usual during the year.

At Uvalde, Texas, worm cases have been normal or below during the year, although the status traps indicate that C. macellaria has been from 100 per cent to 200 per cent above normal the entire season.

SOME SUGGESTIONS AS TO CAUSE OF OUTBREAK

The local station of the Weather Bureau at Vicksburg was visited and complete summaries of climatological data for the year, together with the normal phenomena gathered during the last 50 years, were obtained. The general summaries of weather data have been obtained and studied for the southern and eastern Gulf states. These data indicate that last winter was very mild and precipitation above normal, with wind movements less than normal for the most part. The spring was cool and rather dry. The summer was slightly warmer than normal, with wind movement averaging about one mile per hour more than normal, and with about one-half the normal rainfall, coming in light showers. The meteorologist at Vicksburg characterized it as mostly hot and sultry, with a good deal of clouds. September averaged 1° F. cooler than normal, the rainfall was 5.78 inches and fell in three short periods the first, middle and last of the month, and the wind movement was 6.6 miles per hour or 1.3 miles above normal.

Clear hot weather followed the rains of the first part of the month, and the latter part of the month was cloudy and cool.

From our records at Uvalde it is indicated that C. macellaria does not overwinter normally at Uvalde, and it is inferred from these records that this fly is normally present during the winters only in the extreme southern parts of Texas and Florida. During the extremely mild last winter, flies remained present throughout the Gulf coast country. With the very favorable humid but rather dry summer these flies bred up in good numbers in Mississippi and Louisiana and with the cool weather a good number of gravid females were present and ready for oviposition but were not induced to oviposit until they were attracted to an animal and the body heat of the animal induced oviposition, which would have occurred in carrion had the weather continued warm and humid. In other words, this fly requires a warm humid condition for oviposition and normally finds this in carrion in the east Gulf states, but when the carrion is made unsuitable for oviposition either by drying or cooling, the flies are induced to oviposit on wounds in live animals. This correlates with the data collected in work at Uvalde.

The occurrence of screw worm cases quite regularly from year to year in north and central Mississippi and over the border states and not in south Mississippi may be explained in that C. macellaria migrate each spring and summer to the north and these separate migrations converge in central and north Mississippi but more or less of uninfested territory is left along the central Gulf area. In a survey made in 1925 it was found that in certain sections of eastern Alabama screw worm cases are generally present each year and considerable outbreaks are not unusual.

SUMMARY

An outbreak of screw worm cases occurred in Mississippi and Louisiana during the months of September and October, 1932, which was considered rather serious by the native stockmen, but as compared to south Texas the outbreak was rather less than normal. Most holdings had one or more cases of worms and some had as many as 10 per cent of animals infested. Death loss was considerable in calves and sheep.

The district was visited and the county agents and stockmen were made acquainted with the benzol - pine tar oil treatment of wounds and advised regarding remedial measures. Where county agents were located, they directed the demonstration work. The situation was studied and correlated with climatological data. Larvae were collected from several types of wounds in the several kinds of animals, and bred, and only the screw worm fly, Cochliomyia macellaria, emerged.

Data collected at the Uvalde, Texas, station of the Bureau of Entomology indicates that the screw worm fly, C. macellaria, does not normally overwinter except in the extreme south of Texas and Florida, and it migrates north during each spring and summer. Screw worm cases are usually present each year in most of the southern states, but there is a small area in south Mississippi in which outbreaks occur at intervals of from 10 to 30 years. This may be accounted for in that the two northern migrations do not converge near the central Gulf coast.

The rather unusual outbreak this fall may be accounted for by the extremely mild last winter, allowing overwintering of the fly along the entire Gulf coast, and a very favorable summer allowed the fly to breed up in good numbers. As cool weather approached, a large number of

gravid females present were induced to oviposit in wounds in live stock.

The screw worm fly normally deposits its eggs in carrion.

It requires a warm humid condition to induce oviposition. Oviposition is induced to a greater extent in wounds when available carrion is cooled or dried out.

